

CELL PHONE USE BY MOTOR VEHICLE DRIVERS IN WASHINGTON STATE

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The issue of cell phone involvement in traffic collisions has generated much discussion recently. The debate seems to be focused on anecdotal reports of persons driving carelessly or erratically while talking on cell phones. However, there have been few studies or data presented that attempt to quantify whether cell phones pose a safety risk. A recent WTSC report provides a summary of the research literature addressing this issue (Doane, 2001).

A determination of the rate of involvement of cell phones in traffic crashes requires two data elements, neither of which are presently known in Washington State. The first is the incidence of cell phone use by drivers in crashes. This information could potentially be obtained from police crash investigation reports where officers were asked to identify whether cell phone use by a driver was a factor contributing to the occurrence of the crash. There are, however, numerous difficulties for police officers in making such a determination. The second element is the incidence of cell phone use by all drivers operating vehicles on Washington roadways. Thus, if it were known, for example, that 5% of all drivers are using cell phones at any given time, and that cell phones were identified as a contributing factor in 10% of all crashes, it could be concluded that drivers using cell phones are over-represented in crashes.

The purpose of the present study is to ascertain the incidence of cell phone use by drivers in Washington State. As part the WTSC annual observation survey of seat belt use, additional data were collected on cell phone use in the 2001 survey. While collecting the data on belt use, the survey observers also noted and tallied the number of drivers using hand held cell phones.

SURVEY METHODS

Sample Design and Observation Sites.

The survey was designed by a consulting firm, WESTAT, to provide a statistical estimate of the overall statewide seat belt use rate. The roadways in the sample are a probability sample of all road segments in the state. All 39 counties in Washington were eligible for selection in the sample. A total of 18 counties were selected; nine from western Washington and nine from eastern Washington. The three most populous counties in each half of the state were first selected with certainty, and then six additional counties from each half of the state were selected with a probability based on vehicle miles of travel (VMT) in each county. Roadways were grouped into major roads (primarily state routes and interstate highways) and local roads. Road segments were clustered within sample counties and census tracts and then randomly selected with a probability based on VMT. A detailed description of the sampling and survey methodology can be found in the first

WESTAT report (WESTAT, 1986). The sample included 402 roadway sites. The survey design specified the precise location for each observation site, including the direction of travel that was to be observed.

Sites were grouped in clusters based on geographic proximity in order to minimize the observer's travel time. Clusters were randomly assigned to days of the week, and sites were randomly sequenced within each cluster. All seven days of the week were included in the sample. The survey personnel would typically observe 5 sites per day between the hours of 8 AM and 5 PM. Thus, the survey results can only be generalized to daytime hours. The roadways were observed from the shoulder or sidewalk adjacent to the road, or from an overpass, if possible.

Trained observers collected the survey data. Many of these observers were retired police officers. The survey coordinator, also a retired police officer, trained and monitored the observers. Each roadway site was observed for 80 minutes, and four different types of vehicles were observed during four separate 20-minute data collection periods. The vehicle types were passenger cars (including station wagons), pickup trucks, sport utility vehicles (SUVs), and passenger vans.

Survey personnel observed shoulder belt use of drivers and right-front seat passengers. Cell phone use was observed for drivers only. Belt use (and non-use) was recorded using a mechanical counting device. Observations of cell phone use were recorded on a separate data sheet. At the end of each 20-minute observation period the driver and passenger seat belt counter totals and the driver cell phone total were entered on a data collection form. The use of cell phones was recorded independently of seat belt use; thus, correlating belt use and phone use was impossible. Cell phone observations were limited to hand-held devices; hands-free phones were excluded from the survey.

RESULTS AND DISCUSSION

There were 2,781 drivers observed using a hand held cell phone out of 78,754 total drivers. The overall Statewide cell phone use rate was 3.53%.

Table 1 summarizes the cell phone data for each of the counties in the sample. The use of cell phones tended to be greater in western Washington counties and especially those counties located on the Interstate 5 corridor. The rates also tended to be higher in counties with major urban areas, eg, King county (Seattle), Pierce County (Tacoma), and Snohomish County (Everett). The highest cell phone use rate was found in Whatcom County, which borders British Columbia, Canada.

Table 1. CELL PHONE USE RATES BY DRIVERS,
WASHINGTON STATE, 2001

COUNTY - (E/W) (I-5 corridor)	CELL PHONE USE RATE
CLALLAM (W)	2.03%
CLARK (W) (I-5)	2.55%
COWLITZ (W) (I-5)	4.33%
GRANT (E)	0.95%
KING (W) (I-5)	4.53%
KITTITAS (E)	2.42%
KLICKITAT (E)	0.34%
LINCOLN (E)	1.19%
MASON (W)	0.15%
PIERCE (W) (I-5)	3.05%
SNOHOMISH (W) (I-5)	3.53%
SPOKANE (E)	2.55%
STEVENS (E)	1.20%
THURSTON (W) (I-5)	4.04%
WALLA WALLA (E)	0.82%
WHATCOM (W) (I-5)	5.27%
WHITMAN (E)	2.70%
YAKIMA (E)	0.94%
STATEWIDE TOTAL	3.53%

The rate of cell phone use also varied by the type of vehicle. The highest rates were found for drivers of sport utility vehicles and vans, 4.59% and 4.23% respectively, while the lowest rate was found for passenger cars, 2.91%. Table 2 summarizes the rates by the type of vehicle.

TABLE 2. CELL PHONE USE RATES BY
TYPE OF VEHICLE

PASSENGER CAR	2.91%
PICKUP TRUCK	3.76%
SPORT UTILITY VEH.	4.59%
VAN	4.23%
TOTAL	3.53%

The 3.53% rate of cell phone use for Washington State that was obtained in this survey is comparable to a recent NHTSA survey that found a national rate of 3.0% (Utter, 2001), although higher than the 2.2% rate found for the West Region of the country.

An important limitation of this survey is that the findings can only be generalized to the daylight hours when the observation data were collected, ie, 8AM to 5PM. In addition, the observations were limited to hand-held phones used by drivers of passenger vehicles.

The results from the present survey provide a denominator that could be used for an estimate of the rate of cell phone involvement in traffic crashes in Washington State. Obtaining a numerator to calculate this rate should be approached cautiously, however. There are different methods that could be used to estimate the number and percentage of traffic crashes where a cell phone was in use, each with potential biases and limitations. Possible methods include the following.

1. Police traffic crash reports could be modified so that an investigating officer could indicate whether the driver had been using a cell phone at the time of the crash. This determination, in the majority of cases, would require asking the driver if a cell phone had been in use. The obvious bias is a negative response from the driver in an attempt to avoid culpability for the crash.

2. An in-depth follow-up investigation of the telephone billing records for a sample of crash involved drivers might reveal the incidence of cell phones that had been in use on the same dates and times of the crashes. However, this type of study would require a substantial investment of resources.
3. A questionnaire survey of a sample of drivers could be used to examine the prevalence of cell phone use in motor vehicle crashes. The drawbacks of this method are the biases inherent in self-reports, distortions in memory of crash events, and volunteer bias among those who choose to participate in questionnaire surveys.

The findings of this study (3.53% use rate) indicate that at any given time during daylight hours approximately 3 or 4 out of every 100 drivers of passenger vehicles will be using a cell phone while traveling on Washington roadways.

REFERENCES

Doane, D. Cell Phone Research Summary. Olympia, WA: Washington Traffic Safety Commission, 2001.

Utter, D. Passenger Vehicle Driver Cell Phone Use, Results from the Fall 2000 National Occupant Protection Use Survey. Washington DC: National Highway Traffic Safety Administration, Report No. DOT HS 809 293, July 2001.

WESTAT, Inc. Washington State Observational Survey of Safety Belt Usage. Rockville, MD: WESTAT, Inc., 1986.
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